

The force of the wind varied greatly within quite narrow limits; places 50 to 100 miles on either side of the central path were not exposed to winds of unusual severity. The violence of the storm in the central portion also varied with time and place. The greatest violence was manifested in Florida during the early morning of the 29th. During the daylight hours of the same date, particularly in the afternoon, when the influence of the diurnal change in wind velocity might be expected to accelerate the movement of the storm winds, the violence of the latter seemed to diminish.

The second period of great violence began in Virginia about 9 p. m., and continued until a little after midnight when the storm had reached central Pennsylvania. There was then another lull in the violence of the storm, and a subsequent renewal of intensity during the early morning of the 30th at Syracuse, and other points in Cayuga and Cortland counties, New York.

The rainfall in the center and on the eastern side of the hurricane's path was quite light as compared with that to the westward, and the rainfall in Florida, Georgia, and South Carolina was also light as compared with the fall farther north. The rainfall in a strip of country extending from North Carolina to the southern border of Pennsylvania, probably 100 miles wide and about the same distance west of the storm center, was exceedingly heavy, 5 and 6 inches being recorded at some stations, and 3 to 4 at others. As the storm reached central New York, the rain area spread far to the westward and the violence of the winds diminished.

The form and color of the clouds as observed in Washington during the early part of the storm greatly resembled ground fog driven by a high wind. They were very low, scarcely above the house tops, and of a pure white. With the shift of wind from southeast to south and southwest the form and color of the clouds changed, but the darkness soon became so intense that further observations could not be made. The display of atmospheric electricity was almost continuous, and in the form of broad, diffuse flashes, though not of marked brilliancy or intensity. The flashes were very similar to the well known phenomenon of sheet lightning in summer. There was no thunder at Washington. Thunder and lightning were not observed elsewhere in the storm's path except at a very few places.

The loss of life and property is summarized below:

State.	Loss of life.	Loss of property.
Florida	68	\$3,225,000
Georgia	25	933,000
South Carolina	5	25,000
North Carolina	0	30,000
Virginia	5	695,000
District of Columbia	1	443,000
Maryland	8	500,000
Pennsylvania	2	2,140,000
New York	0	50,000
Total	114	\$7,031,000

TEMPERATURE OF THE AIR.

[In degrees Fahrenheit.]

The mean temperature is given for each station in Table II, for voluntary observers. Both the mean temperatures and the departures from the normal are given in Table I for the regular stations of the Weather Bureau.

The *monthly mean temperatures* published in Table I, for the regular stations of the Weather Bureau, are the simple means of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

The *regular diurnal period* in temperature is shown by the hourly means given in Table V for 29 stations selected out of 82 that maintain continuous thermograph records.

The *distribution of the observed monthly mean temperature* of the air over the United States and Canada is shown by the dotted isotherms on Chart IV; the lines are drawn over the Rocky Mountain Plateau Region, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The *highest mean temperatures* were: Yuma, 84.0; Phoenix, 82.9; Key West, 82.0; Jupiter, 80.6; Galveston, 80.2. The lowest temperatures were: Sault Ste. Marie, 51.6; Helena, 51.8; Williston, 52.8; Havre, 52.4; Tatoosh Island, 52.0. Among the Canadian stations the highest were: Kingston, 57.6; Halifax, 58.0. The lowest were: Banff, 43.2; Prince Albert, 45.4.

As compared with the normal for September the mean temperature for the current month was in excess in the South Atlantic and Gulf States and the Canadian Provinces. It was deficient on the Atlantic Coast, the Missouri Valley, and Lake Region. The greatest excesses were: Palestine, 3.8; Atlanta, 3.2; Columbia, S. C., 2.6; Phoenix, 2.1. The greatest deficits were: Sioux City, 6.2; Minneapolis, 4.5; La Crosse, 4.9; Helena and Miles City, 4.8; Sault Ste. Marie, 4.4.

Considered by districts the mean temperatures for the current month show departures from the normal as given in Table I. The greatest positive departures were: South Atlantic, 1.3; East Gulf, 1.2; West Gulf, 1.7. The greatest negative departures were: Upper Mississippi, 2.9; Missouri Valley, 2.5; northern Slope, 3.2.

The *years of highest and lowest mean temperature* for September are shown in Table I of the REVIEW for September, 1894. The mean temperature for the current month was not the highest on record at any regular station of the Weather Bureau. It was the lowest on record at: La Crosse, 55.5; Rapid City, 56.7; Sioux City, 58.5.

The *maximum and minimum temperatures* of the current month are given in Table I. The highest maxima were: 108, Yuma (15th); 104, Phoenix (4th), Columbia, S. C. (18th), Palestine (5th); 102, Fort Smith (17th); 101, Fresno (6th), Dodge City (8th), and Augusta (18th); 100, Red Bluff (5th), Oklahoma (7th), San Antonio (5th). The lowest maxima were: 68, Tatoosh Island (4th) and Eureka (10th); 70, Point Reyes Light (6th); 72, Sault Ste. Marie (8th); 73, Eastport (11th). The highest minima were: 72, Key West (19th); 71, Jupiter (11th); 62, Tampa (24th); 61, Galveston (28th); 60, Port Eads (frequently). The lowest minima were: 19, Cheyenne (27th); 22, Bismarck (19th); 24, Huron (19th), Lander (27th), Idaho Falls (27th); 26, Williston (19th).

The *years of highest maximum and lowest minimum temperatures* are given in the last four columns of Table I of the current REVIEW. During the present month the maximum temperatures were the highest on record at: Columbia, S. C., and Palestine, 104; Fort Smith, 102; Dodge City and Augusta, 101; Little Rock, 100; Charlotte and Nashville, 99; Raleigh and Chattanooga, 98; Savannah, Atlanta, and Cairo, 97; Lexington, 95; Tampa, 94; Northfield, 90; Fort Canby, 89; Port Angeles, 78. The minimum temperatures were the lowest on record at: Cheyenne, 19; Alpena, 28; Sault Ste. Marie, 29; Buffalo, 35; Amarillo, 38; Little Rock and Memphis, 41; Columbia, S. C., Vicksburg, and Abilene, 42; Shreveport, 45; Palestine, 47; Mobile, 49; New Orleans, 56; Tampa, 62.

The *greatest daily range of temperature and data for computing the extreme and mean monthly ranges* are given for each of the regular Weather Bureau stations in Table I. The largest values of the greatest daily ranges were: Miles City, 50;

Havre, 49; Roseburg, 48; Bismarck and Winnemucca, 46; Pierre, Idaho Falls, Carson City, and San Luis Obispo, 45. The smallest values were: Hatteras, Key West, and Galveston, 14; Jupiter, 15; Nantucket, Block Island, and Tatoosh Island, 16; Eastport and Kittyhawk, 19; Charleston and Point Reyes Light, 20.

Among the *extreme monthly ranges* the largest were: Bismarck and Huron, 71; Pierre, 70; Moorhead, 68; Williston and Cheyenne, 64. The smallest values were: Key West, 18; Jupiter, 19; Point Reyes Light, 21; Eureka, 25; Tatoosh Island and San Diego, 26.

The *accumulated monthly departures* from normal temperatures from January 1 to the end of the current month are given in the second column of the following table, and the average departures are given in the third column for comparison with the departures of current conditions of vegetation from the normal condition.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
Middle Atlantic.....	+ 4.7	+ 0.5	New England.....	- 0.1	- 0.0
South Atlantic.....	+11.5	+ 1.3	Florida Peninsula.....	-11.1	- 1.2
East Gulf.....	+ 2.9	+ 0.3			
West Gulf.....	+13.0	+ 1.4			
Ohio Valley and Tenn.....	+11.0	+ 1.2			
Lower Lake.....	+ 9.5	+ 1.1			
Upper Lake.....	+20.7	+ 2.3			
North Dakota.....	+ 5.0	+ 0.6			
Upper Mississippi.....	+13.0	+ 2.1			
Missouri Valley.....	+18.9	+ 2.1			
Northern Slope.....	+ 6.2	+ 0.7			
Middle Slope.....	+24.2	+ 2.7			
Abilene (southern Slope).....	+25.6	+ 2.8			
Southern Plateau.....	+ 6.5	+ 0.7			
Middle Plateau.....	+ 0.8	+ 0.1			
Northern Plateau.....	+15.3	+ 1.7			
North Pacific.....	+ 1.9	+ 0.2			
Middle Pacific.....	+ 0.6	+ 0.1			
South Pacific.....	+ 2.9	+ 0.3			

MOISTURE.

The *quantity of moisture* in the atmosphere at any time may be expressed by the weight of the vapor coexisting with the air contained in a cubic foot of space, or by the tension or pressure of the vapor, or by the temperature of the dew-point. The mean dew-point for each station of the Weather Bureau, as deduced from observations made at 8 a. m. and 8 p. m., daily, is given in Table I.

The *rate of evaporation* from a special surface of water on muslin at any moment determines the temperature of the wet-bulb thermometer; an evaporimeter may be so constructed as to give the *quantity* of water evaporated from a similar surface during any interval of time. Such an evaporimeter, therefore, would sum up or integrate the effects of those influences that determine the temperature as given by the wet bulb; from this quantity the *average humidity of the air* during any given interval of time may be deduced.

Measurements of evaporation within the thermometer shelters are difficult to make so as to be intercomparable at temperatures above and below freezing, and they may be replaced by computations based on the wet-bulb temperatures. The absolute amount of evaporation from natural surfaces not protected from wind, rain, sunshine, and radiation, are being made at a few experimental stations and will be discussed in special contributions.

Sensible temperatures.—The sensation of temperature experienced by the human body and ordinarily attributed to the condition of the atmosphere depends not merely on the temperature of the air, but also on its dryness, on the velocity of the wind, and on the suddenness of atmospheric changes, all combined with the physiological condition of the observer.

A satisfactory expression for the relation between atmospheric conditions and nervous sensations has not yet been obtained.

PRECIPITATION.

[In inches and hundredths.]

The *distribution of precipitation* for the current month, as determined by reports from about 2,500 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III. The total precipitation for the current month was heaviest, viz, above 8 inches, in a small region on the southern peninsula of Florida; in central Texas; on the coast of Nova Scotia near Halifax, and the coasts of Massachusetts and Maine.

The larger values at regular stations were: Halifax, 12.1; Port Eads, 10.7; Portland, Me., 9.6; Block Island, 7.8; Bermuda, 7.2.

Details as to *excessive precipitation* are given in Tables XII and XIII.

The *diurnal variation*, as shown by tables of hourly means of the total precipitation, deduced from self-registering gauges kept at the regular stations of the Weather Bureau, is not now tabulated.

The *current departures* from the normal precipitation are given in Table I, which shows that precipitation was in excess over the lower Lake Region, the Ohio, Mississippi, and Missouri valleys, the eastern Rocky Mountain Slope, New England, and the Canadian Provinces. It was deficient on the Pacific Coast and in the Gulf and South Atlantic States. The large excesses were: Halifax, 8.6; Portland, Me., 6.5; Block Island, 4.8; Port Eads, 4.5. The large deficits were: Jacksonville, 6.2; Tatoosh Island, 5.7; Jupiter, 4.1; Savannah and Galveston, 4.0.

The *average departure* for each district is given in Table I. By dividing each current precipitation by its respective normal the following corresponding percentages are obtained (precipitation is in excess when the percentage of the normal exceeds 100):

Above the normal: New England, 172; Ohio Valley and Tennessee, 141; lower Lake, 138; upper Lake, 126; North Dakota, 129; Upper Mississippi, 128; Missouri Valley, 116; northern Slope, 182; middle Slope, 123; southern Slope, 143; southern Plateau, 138.

Normal: West Gulf, middle Plateau, and middle Pacific, 100.

Below the normal: Middle Atlantic, 92; south Atlantic, 53; Florida Peninsula, 76; east Gulf, 74; northern Plateau, 31; north Pacific, 38; south Pacific, 17.

The *total accumulated monthly departures* from normal precipitation from January 1 to the end of the current month are given in the second column of the following table; the third column gives the ratio of the current accumulated precipitation to its normal value.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Inches.	Per cent.		Inches.	Per cent.
Lower Lake.....	+ 3.60	114	New England.....	- 2.70	92
North Dakota.....	+ 1.50	109	Middle Atlantic.....	- 3.10	91
Upper Mississippi.....	+ 1.70	106	South Atlantic.....	- 9.80	78
Missouri Valley.....	+ 0.20	101	Florida Peninsula.....	- 2.00	95
Northern Slope.....	+ 0.70	106	East Gulf.....	- 8.20	82
Southern Plateau.....	+ 0.60	110	West Gulf.....	- 9.70	71
Middle Plateau.....	+ 3.10	136	Ohio Valley and Tenn.....	- 2.30	94
North Pacific.....	+ 2.60	107	Upper Lakes.....	- 1.30	95
Middle Pacific.....	+ 2.80	114	Middle Slope.....	- 2.10	89
			Abilene (southern Slope).....	- 5.20	74
			Northern Plateau.....	- 0.50	96
			South Pacific.....	- 2.00	76

The *years of greatest and least precipitation* for September are given in the REVIEW for September 1890. The precipita-